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ABSTRACT

Presented is a description of the Childhood Education Program at the University of Florida that is intended to prepare preservice elementary teachers for dealing with science in the classroom. Emphasis is on learning to use a student observation rating form (STORF) which is included in the paper. (SA)

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THE USE OF LESSON PREPARATION AND ACTUAL CLASSROOM TEACHING AS A PART OF A PLANNED PRE-SERVICE ELEMENTARY SCIENCE EDUCATION PROGRAM

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The Use of Lesson Preparation and Actual Classroom Teaching as a Part of a Planned Pre-Service Elementary Science Education Program

At the University of Florida there is a unique pre-service elementary education program. It was started as an experimental program in 1968 and was based on the research and philosophy of Arthur Combs. This program became the regular program for elementary education in 1972 and is known as the Childhood Education Program. (C.E.P.)

The C.E.P. is an upper division (junior-senior) level program in which students are continuously involved in field experience in elementary schools. Methods classes are replaced by work in nine substantitive areas. (Art, Curriculum, Mathematics, Music, Language Arts, Psychological Foundations, Reading, Science, and Social Studies) A student starts work in a substantitive area by attending one or two orientation sessions. At this time the student is provided with a syllabus which lists learning activities in the area. Some learning activities are required of all students, some are chosen by the student, and some may be proposed by the student. The student works in a substantitive area until all requirements have been met. This usually is spread over two to four quarters time.

As this paper deals with lesson preperation and actual classroom teaching, only those learning activities in these areas will be examined. The following are taken from the science requirements in C.E.P. IV (one of our elementary education teams).

All students are required to complete learning activity number four which is stated below.

> *Develop plans and materials, and use four of the following techniques in teaching four science lessons to children.*
>
> *a) Science Center Component*
>
> *b) Pictorial Riddles*
>
> *c) Inductive Teaching*
>
> *d) Counterintuitive (Discrepant Events)*
>
> *e) Open-ended Investigation*

Most students will elect to learn about teaching techniques by attending help group sessions held by the science instructor. Some may elect to work independently. Below are the directions they follow.

> *Develop plans and materials; and use four of the following techniques in teaching science to children: Science Center Component (Shoe box kit), Counterintuitive (Discrepant Events), Pictorial Riddles, Open-ended Investigation, Inductive Teaching.*
>
> *1. Read the sections in the books as listed below. These books will be on reserve in the Education Library.*
>
> *Carin, Arthur and Sund, Robert. Teaching Science Through Discovery. Columbus, Ohio: Charles E. Merrill, 1970.*
> *Counterintuitive p. 130-132.*
> *Pictorial Riddles p. 132-134.*

Friedl, Albert E. Teaching Science to Young Children: The Inquiry Approach Applied. New York: Random House, 1972.
Counterintuitive p. 5-11.

Pilitz, A. and Sund, Robert. Creative Teaching of Science in the Elementary School. Boston: Allyn and Bacon, 1968.
Counterintuitive p. 131-140
Pictorial Riddles p. 132-134

2. *Listen to the tape "Teaching Techniques." It is available at the Media Center. There is also a copy that you may listen to during scheduled open labs in 174 Norman.*

3. *View the video tape "Science Teaching Techniques in the Elementary School." It is available in the Media Center.*

4. *Pick up the forms that you must fill out for this learning activity in 174 Norman.*

5. *If at this point it is not clear what you are to do, ASK THE INSTRUCTOR FOR HELP. This may be done during a scheduled open lab or in the instructor's office.*

6. *Plan activities for four of the teaching techniques. Before putting much time on this, check with the teacher you are working with during your field experience to see if you may try the teaching techniques in her room. If she says "no" you may have to wait until next quarter when you will be in a different situation. If she says "yes", check to find out what her plans are so that your material will fit into the teacher's overall goals.*

7. *Turn in your forms for the four teaching techniques you have completed. These should be clipped or stapled together in the upper left hand corner. Be sure that the classroom teacher has signed each form.*

Students choose whether to do learning activity number two or learning activity number fourteen. These activities are listed below.

2. *Learn to use the Science Teacher Observation Rating Form (STORF) and demonstrate competence observing two taped situations. As a member of a three person team, observe (with the STORF) at least two science lessons being taught and teach at least one lesson which is observed (with the STORF) by two team members.*

14. *Listen to the tape "Essential Experiences for Children" from the audio tape collection "Involving the Child in Science" by Dr. John W. Renner. Develop plans and materials, and use four of Renner's five essential experiences in teaching four lessons to children.*

While most students elect to attend group help sessions some will choose to work independently. Directions for each activity follow.

DIRECTIONS FOR
CEP SCIENCE LEARNING ACTIVITY NUMBER TWO - LEARNING TO USE THE SCIENCE TEACHER OBSERVATION RATING FORM (STORF)

Learn to use the Science Teacher Observation Rating Form (STORF) and demonstrate competence observing two taped situations. As a member of a three person Science Teaching Observation team observe (with the STORF) at least two science lessons being taught and teach at least one lesson which is observed (with the STORF) by at least two team members.

To complete this learning activity the student must:

1) *Read and understand the direction booklet for the STORF. ASK QUESTIONS IF THERE IS ANYTHING THAT IS NOT CLEAR TO YOU. (You may checkout a copy of the STORF direction booklet. STORF forms are available in the lab from the instructor.*

   ALTERNATIVE - As an alternative to the above you may view the slide tape presentation "Using the STORF". It is available in the Education Media Center.

2) *Use the STORF with the following set of two taped situations:*

   SET 1: a) STORF Training Tape - 3rd grade situation

   b) STORF Training Tape - 6th grade situation

   THESE TAPES MAY BE VIEWED IN THE MEDIA CENTER

3) *Use the STORF in classrooms, observing two other students teach in the area of science.*

4) *The two students mentioned in item #3 must use the STORF in a classroom, observing you teaching science to children.*

5) *Hand in the following items as evidence of the completion of this learning activity:*

   A. *Two copies of the STORF used to observe the taped situations with the following information on the back of each (upper right hand corner)*

      1. *Your name*
      2. *Date observed*
      3. *The word "TAPED"*
      4. *Grade level observed*
      5. *Tape number*
      6. *Score*

   B. *Four copies of the STORF used to observe the live classroom situations with the following information on the back of each (upper right hand corner).*

      1. *Observer's name*
      2. *Student observed*
      3. *Date observed*
      4. *The words "Live Classroom"*
      5. *Grade level observed*
      6. *Score*

   NOTE: ITEMS FROM 5B WILL BE RETURNED SO THAT THEY CAN BE TURNED IN AGAIN BY EACH OF THE OTHER TWO STUDENTS.

   C. *A short paragraph summarizing what you have learned about your teaching from this activity.*

SCIENCE TEACHER OBSERVATION RATING FORM #
(STORF)

Developed in the College of Education at the University of Florida by Lynn Oberlin

BEHAVIOR A Tot.	1	2	3		ROOM OBSERVATION	Tot.	1	2	3	BEHAVIOR B
				*1.	Room has a science corner or table.					*1. Room has no science corner or table.
				*2.	Student made or brought in material is in evidence.					*2. There is little or no student made or brought in material.
				3.	Original art work of pupils displayed.					3. "Pattern" art work in evidence.
					TEACHER-STUDENT OBSERVATION					
				*4.	Teacher brings other subject matter into lesson, (lang. arts, math, soc. studies)					*4. Teacher does not bring other subject matter areas into lesson.
				*5.	Students can work at their own pace.					*5. All students proceed at same rate.
				*6.	Students share their experiences.					*6. No sharing of experiences evident.
				*7.	Students are active participants.					*7. Students listen only.
				*8.	Students have a chance to follow their own interests.					*8. Students have no chance to follow their own interests.
				9.	Teacher engages in student activities.					9. Teacher refrains from involvement in student activities.
				10.	Teacher has individuals doing different work.					10. Teacher has all students doing same assignment.
				11.	Teacher asks open questions.					11. Teacher asks closed questions.
				12.	Teacher asks questions not directly answerable from textbook.					12. Teacher asks questions which can be easily answered if student has studied the lesson
				13.	Teacher questions misconceptions.					13. Teacher permits formation of misconceptions.
				14.	Teacher encourages guessing or hypothesizing.					14. Teacher expects students to know and NOT guess.
				15.	Teacher refrains from judging student's behavior or work.					15. Teacher passes judgment on student's behavior or work.
				16.	Students read material from different sources.					16. Students are assigned to read from same book.
				17.	Students' questions answered by other students.					17. Students' questions answered by teacher.
				18.	Students conduct experiments individually or in groups.					18. Teacher or student demonstration for entire class to watch.
				19.	Students design their own experiments.					19. Students perform textbook experiments.
				20.	Students' questions shape the direction the lesson takes.					20. Teacher determines direction of lesson.
				21.	Teacher's non-verbal cues provide positive reinforcement for students.					21. Teacher's non-verbal cues provide negative reinforcement for students.
					(TOTAL - 21 items)					(TOTAL - 21 items)

*Single answer required

DIRECTIONS FOR
CEP SCIENCE LEARNING ACTIVITY NUMBER FOURTEEN
UTILIZING ESSENTIAL EXPERIENCES

Listen to the tape "Essential Experiences for Children" from the audio tape collection "Involving the Child in Science" by Dr. John W. Renner. Develop plans and materials and use four of Renner's five essential experiences in teaching four lessons to children.

To complete this learning activity the following approach should be used:

1) *Listen to the tape "Essential Experiences for Children", one of four audio tapes from the collection "Involving the Child in Science." All four of these tapes by John W. Renner are available in the Media Center and in 174 Norman.*

   It is suggested that notes be taken while listening to the tape.

2) *Pick up the forms that you must fill out for this learning activity in 174 Norman. You will need 4 copies of Activity Fourteen learning activity form.*

3) *If at this point it is not clear what you are to do, ASK THE INSTRUCTOR FOR HELP. This may be done during a scheduled lab or in the instructor's office.*

4) *Plan activities for four of the five essential experiences. Before putting much time on this, check with the teacher you are working with during your field experience to see if you may focus on the essential experiences in her room. If she says "yes" check to find out what her plans are so that your material will fit into the teacher's overall goals.*

5) *Turn in your forms for your science lessons focusing on the essential experiences. These should be clipped or stapled together in the upper left hand corner. Be sure that the classroom teacher has signed each form.*

In addition to these experiences, students must select other learning activities which may or may not include planning and teaching science lessons to children. They also have a chance to propose their own activities. Below are the learning activities which fit in these categories.

8. *Plan and teach a science UNIT (several lessons) to twelve or more children. The following must be provided for: Active involvement of children; Differing achievement and ability levels of children; General student planning; Student choices; Student planned inquiry; Use of manipulative materials.*

9. *Teach a UNIT (several lessons) of one of the new programs (AAAS, SCIS, ESS, COPES) to twelve or more children.*

17. *Plan and teach a unit (several lessons) to 12 or more children, integrating science with one or more other content or skill areas. The following must be provided for: Active involvement of children; differing achievement and ability levels of children; General student planning; Student planned inquiry; and Use of manipulative materials.*

11. *Propose other learning activities which will help the student to become a better teacher of Science in the elementary school. Proposals must be agreed upon IN WRITING by the student and the instructor. Number eleven may be repeated with a change of content.*

By the time a student completes the science education portion of the program, he/she has actually planned and taught several science lessons to elementary school children. This teaching experience not only provides for planning science experiences and working with elementary students, but also provides the education student with real life practice in the use of certain teaching techniques.

These requirements have been in use for years and have worked very well. With today's basic skills movement forcing elementary school science to be neglected in many schools, this program assures that each elementary education student will have some contact with science in an elementary school context.